Federal Communications Commission
Washington, D. C. 20554

FCC 340

RM 9068
MM96-249

Approved by OMB
3060-0034
Expires 11/30/94
See Page 23 for information regarding public burden estimate

APPLICATION FOR CONSTRUCTION PERMIT FOR NONCOMMERCIAL EDUCATIONAL BROADCAST STATION

(Carefully read instructions before filing form) Return only form to FCC

RECEIVED

For Commission Use Only
File No. BPED-960126MC

Section I - GENERAL INFORMATION

1. Name of Applicant		
Spokane Public Radio, Inc.		
Street Address or P.O. Box		
2319 N. Monroe St.		
City	State	ZIP Code
Spokane	WA	99205
Telephone No. (Include Area Code)		
509 328-5729		

Send notices and communications to the following person at the address below:		
Name		
Richard Kunkel, CEO Spokane Public Radio, Inc.		
Street Address or P.O. Box		
2319 N. Monroe St.		
City	State	ZIP Code
Spokane	WA	99205
Telephone No. (Include Area Code)		
509 328-5729		

2. This application is for: ☐ AM ☒ FM ☐ TV

(a) Channel No. or Frequency	(b) Principal Community	City	State
220		Spokane	WA

(c) Check one of the following boxes:

DHT 1/24

☐ Application for **NEW** station

☒ **MAJOR** change in licensed facilities; call sign: ..... KSFC

☐ **MINOR** change in licensed facilities; call sign: .....

☐ **MAJOR** modification of construction permit; call sign: .....

File No. of construction permit: .....

☐ **MINOR** modification of construction permit; call sign: .....

File No. of construction permit: .....

☐ **AMENDMENT** to pending application; application file number: .....

NOTE: It is not necessary to use this form to amend a previously filed application. Should you do so, however, please submit only Section I and those other portions of the form that contain the amended information.

3. Is this application mutually exclusive with a renewal application? ☐ Yes ☒ No

If Yes, state:	Call letters	Community of License	
		City	State

N/A

Section V-B - FM BROADCAST ENGINEERING DATA	FOR COMMISSION USE ONLY File No. _____ ASB Referral Date _____ Referred by _____

Name of Applicant

Spokane Public Radio, Inc.

Call letters *(if issued)*	Is this application being filed in response to a window? ☐ Yes ☒ No
KSFC	If Yes, specify closing date: _____

Purpose of Application: *(check appropriate box(es))*

☐ Construct a new (main) facility

☐ Construct a new auxiliary facility

☐ Modify existing construction permit for main facility

☐ Modify existing construction permit for auxiliary facility

☒ Modify licensed main facility * See Ex #E1 Engineering Statement

☐ Modify licensed auxiliary facility

If purpose is to modify, indicate below the nature of change(s) and specify the file number(s) of the authorizations affected.

☒ Antenna supporting-structure height

☒ Effective radiated power

☒ Antenna height above average terrain

☐ Frequency

☒ Antenna location

☒ Class

☐ Main Studio location

☒ Other *(Summarize briefly)* Add Directional antenna

File Number(s) BLED 112116AA

1. Allocation:

Channel No.	Principal community to be served:		
	City	County	State
220	Spokane	Spokane	WA

Class *(check only one box below)*

☐ A ☐ B1 ☐ B ☐

☒ C2 ☐ C1 ☐ C ☐

2. Exact location of antenna.

(a) Specify address, city, county and state. If no address, specify distance and bearing relative to the nearest town or landmark

Krell Hill, 7 miles SE of Spokane, WA

(b) Geographical coordinates (to nearest second). If mounted on element of an AM array, specify coordinates of center of arra Otherwise, specify tower location. Specify South Latitude or East Longitude where applicable; otherwise, North Latitude or West Longitude will be presumed.

Latitude	47°	34'	34"	Longitude	117°	17'	58"

3. Is the supporting structure the same as that of another station(s) or proposed in another pending application(s)? ☒ Yes ☐ N

If Yes, give call letter(s) or file number(s) or both. KSPS-TV BRET-801003KG

If proposal involves a change in height of an existing structure, specify existing height above ground level including antenna, all other appurtenances, and lighting, if any.

N/A

SECTION V-B – FM BROADCAST ENGINEERING DATA (Page 2)

4. Does the application propose to correct previous site coordinates? ☐ Yes ☒ No
   If Yes, list old coordinates.

Latitude ° ' "	Longitude ° ' "

5. Has the FAA been notified of the proposed construction? ☒ Yes ☐ No
   If Yes, give date and office where notice was filed and attach as an Exhibit a copy of FAA determination, if available. Exhibit No.

   Date November 29, 1996 Office where filed Northwest Mountain Regional

6. List all landing areas within 8 km of antenna site. Specify distance and bearing from structure to nearest point of the nearest runway.

	Landing Area	Distance (km)	Bearing (degrees True)
(a)	None		
(b)			

7. (a) Elevation: *(to the nearest meter)*

   (1) of site above mean sea level; 1106 meters

   (2) of the top of supporting structure above ground (including antenna, all other appurtenances, and lighting, if any); and 182 meters

   (3) of the top of supporting structure above mean sea level [(aX1) + (aX2)] 1289* meters

   * Figure from vertical sketch to prevent rounding error.

   (b) Height of radiation center: *(to the nearest meter)* H = Horizontal; V = Vertical

   (1) above ground 113 meters (H)

   113 meters (V)

   (2) above mean sea level [(aX1) + (bX1)] 1219 meters (H)

   1219 meters (V)

   (3) above average terrain 501 meters (H)

   501 meters (V)

8. Attach as an Exhibit sketch(es) of the supporting structure, labelling all elevations required in Question 7 above, except item 7(bX3). If mounted on an AM directional-array element, specify heights and orientations of all array towers, as well as location of FM radiator. Exhibit No. E2

9. Effective Radiated Power:
   (a) ERP in the horizontal plane 3.16 kw (H*) 3.16 kw (V*)

   (b) Is beam tilt proposed? ☐ Yes ☒ No

   If Yes, specify maximum ERP in the plane of the tilted beam, and attach as an Exhibit a vertical elevational plot of radiated field. Exhibit No. N/A

   _____ kw (H*) _____ kw (V*)

   *Polarization

SECTION V-B – FM BROADCAST ENGINEERING DATA (Page 2)

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If Yes, list old coordinates.

Latitude ° ' "	Longitude ° ' "

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Exhibit No.

Date November 29, 1996 Office where filed Northwest Mountain Regional

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(a)	None		
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(1) of site above mean sea level; 1106 meters

(2) of the top of supporting structure above ground (including antenna, all other appurtenances, and lighting, if any); and 182 meters

(3) of the top of supporting structure above mean sea level [(aX1) + (aX2)] 1289* meters

* Figure from vertical sketch to prevent rounding error.

(b) Height of radiation center: *(to the nearest meter)* H = Horizontal; V = Vertical

(1) above ground 113 meters (H)
113 meters (V)

(2) above mean sea level [(aX1) + (bX1)] 1219 meter.
1219 meters (V)

(3) above average terrain 501 meters (H)
501 meters (V)

8. Attach as an Exhibit sketch(es) of the supporting structure, labelling all elevations required in Question 7 above, except item 7(bX3). If mounted on an AM directional-array element, specify heights and orientations of all array towers, as well as location of FM radiator.

Exhibit No. E2

9. Effective Radiated Power:
(a) ERP in the horizontal plane 3.16 kw (H*) 3.16 kw (V*)

(b) Is beam tilt proposed? ☐ Yes ☒ No

If Yes, specify maximum ERP in the plane of the tilted beam, and attach as an Exhibit a vertical elevational plot of radiated field.

Exhibit No. N/A

_____ kw (H*) _____ kw (V*)

*Polarization

10. Is a directional antenna proposed? [X] Yes [ ] No

If Yes, attach as an Exhibit a statement with all data specified in 47 C.F.R. Section 73.316, including plot(s) and tabulations of horizontally and vertically polarized radiated components in terms of relative field. Exhibit No. E3

11. Will the main studio be located within the 70 dBu or 3.16 mV/m contour? [X] Yes [ ] No

If No, attach as an Exhibit justification pursuant to 47 C.F.R. Section 73.1125. Exhibit No. N/A

12. Are there: (a) within 60 meters of the proposed antenna, any proposed or authorized FM or TV transmitters, or any nonbroadcast *(except citizens band or amateur)* radio stations; or (b) within the blanketing contour, any established commercial or government receiving stations, cable head-end facilities, or populated areas; or (c) within ten (10) kilometers of the proposed antenna, any proposed or authorized FM or TV transmitters which may produce receiver-induced intermodulation interference? [X] Yes [ ] No

If Yes, attach as an Exhibit a description of any expected, undesired effects of operations and remedial steps to be pursued if necessary, and a statement accepting full responsibility for the elimination of any objectionable interference (including that caused by receiver-induced or other types of modulation) to facilities in existence or authorized or to radio receivers in use prior to grant of this application. *(See 47 C.F.R. Sections 73.315(b), 73.316(d) and 73.318.)* Exhibit No. E4

13. Attach as an Exhibit a 7.5 minute series U.S. Geological Survey topographic quadrangle map that shows clearly, legibly, and accurately, the location of the proposed transmitting antenna. This map must comply with the requirements set forth in Instruction D for Section V. Further, the map must clearly and legibly display the original printed contour lines and data as well as latitude and longitude markings, and must bear a scale of distance in kilometers. Exhibit No. E5

14. Attach as an Exhibit *(name the source)* a map which shows clearly, legibly, and accurately, and with the original printed latitude and longitude markings and a scale of distance in kilometers: Exhibit No. E6

(a) the proposed transmitter location, and the radials along with profile graphs have been prepared;

(b) the 1 mV/m predicted contour and, for noncommercial educational applicants applying on a commercial channel, the 3.16 mV/m contour; and

(c) the legal boundaries of the principal community to be served.

15. Specify area in square kilometers (1 sq. mi. = 2.59 sq. km.) and population (latest census) within the predicted 1 mV/m contour.

Area 5,857 sq. km. Population 430,561

16. Attach as an Exhibit a map *(Sectional Aeronautical charts where obtainable)* showing the present and proposed 1 mV/m (60 dbu) contours. Exhibit No. E7

Enter the following from Exhibit above: Gain Area 5,754 sq. ~~mi.~~ km
Loss Area -0- sq. ~~mi.~~ km

Percent change (gain area plus loss area as percentage of present area) 559 %.
If 50% or more this constitutes a major change. Indicate in question 2(c), Section I, accordingly.

17. For an application involving an auxiliary facility only, attach as an Exhibit a map *(Sectional Aeronautical Chart or equivalent)* that shows clearly, legibly, and accurately, and with latitude and longitude markings and a scale of distance in kilometers:

Exhibit No. N/A

(a) the proposed auxiliary 1 mV/m contour; and

(b) the 1 mV/m contour of the licensed main facility for which the applied-for facility will be auxiliary. Also specify the file number of the license. See 47 C.F.R. Section 73.1675. (File No.:_____)

18. Terrain and coverage data *(to be calculated in accordance with 47 C.F.R. Section 73.313).*

Source of terrain data: *(check only one box below)*

☒ Linearly interpolated 30-second database ☐ 7.5 minute topographic map

(Source: N.G.D.C. TGP0050)

☐ Other *(briefly summarize)*

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 3 to 16 km (meters)	Predicted Distances to the 1 mV/m contour (kilometers)
0	*	*
45	* See Ex #E1, Pg #5	*
90	*	*
135		
180		
225		
270		
315		

Allocation Studies

(See Subpart C of 47 C.F.R. Part 73)

19. Is the proposed antenna location within 320 kilometers (199 miles) of the common border between the United States and Mexico? ☐ Yes ☒ No

If Yes, attach as an Exhibit a showing of compliance with all provisions of the Agreement between the United States of America and the United Mexican States concerning Frequency Modulation Broadcasting in the 88 to 108 MHz band.

Exhibit No. N/A

17. For an application involving an auxiliary facility only, attach as an Exhibit a map *(Sectional Aeronautical Chart or equivalent)* that shows clearly, legibly, and accurately, and with latitude and longitude markings and a scale of distance in kilometers:

Exhibit No. N/A

(a) the proposed auxiliary 1 mV/m contour; and

(b) the 1 mV/m contour of the licensed main facility for which the applied-for facility will be auxiliary. Also specify the file number of the license. See 47 C.F.R. Section 73.1675. (File No.: _____)

18. Terrain and coverage data *(to be calculated in accordance with 47 C.F.R. Section 73.333).*

Source of terrain data: *(check only one box below)*

[X] Linearly interpolated 30-second database [ ] 7.5 minute topographic map

(Source: N.G.D.C. TGP0050)

[ ] Other *(briefly summarize)*

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 3 to 16 km (meters)	Predicted Distances to the 1 mV/m contour (kilometers)
0	*	*
45	* See Ex #E1, Pg #5	*
90	*	*
135		
180		
225		
270		
315		

Allocation Studies

(See Subpart C of 47 C.F.R. Part 73)

19. Is the proposed antenna location within 320 kilometers (199 miles) of the common border between the United States and Mexico? [ ] Yes [X] No

If Yes, attach as an Exhibit a showing of compliance with all provisions of the Agreement between the United States of America and the United Mexican States concerning Frequency Modulation Broadcasting in the 88 to 108 MHz band.

Exhibit No. N/A

20. Is the proposed antenna location within 320 kilometers of the common border between the United States and Canada? [X] Yes [ ] No

If Yes, attach as an Exhibit a showing of compliance with all provisions of the Working Agreement for Allocation of FM Broadcasting Stations on Channels 201-300 under The Canada-United States FM Agreement of 1947. Exhibit No. E8

21. If the proposed operation is for a channel in the range from channel 201 through 220 (88.1 through 91.9 MHz), or if this proposed operation is for a class D station in the range from Channel 221 through 300 (92.1 through 107.9 MHz), attach as an Exhibit a complete allocation study to establish the lack of prohibited overlap of contours with other U.S. stations. The allocation study should include the following: Exhibit No. E8

(a) The normally protected interference-free and the interfering contours for the proposed operation along all azmuths.
(b) Complete normally protected interference-free contours of all other proposals and existing stations to which objectionable interference would be caused.
(c) Interfering contours over pertinent arcs of all other proposals and existing stations from which objectionable interference would be received.
(d) Normally protected and interfering contours over pertinent arcs, of all other proposals and existing stations, which require study to show the absence of objectionable interference.
(e) Plot of the transmitter location of each station or proposal requiring investigation, with identifying call letters, file numbers and operating or proposed facilities.
(f) When necessary to show more detail, an additional allocation study will be attached utilizing a map with a larger scale to clearly show interference or absence thereof.
(g) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire Exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
(h) The name of the map(s) used in the Exhibit(s).

22. With regard to any stations separated by 53 or 54 channels (10.6 or 10.8 MHz) attach as an Exhibit information required in 1/ *(separation requirements involving intermediate frequency (i.f.) interference)*. Exhibit No. E8

23.(a) Is the proposed operation on Channel 218, 219, or 220? [X] Yes [ ] No

(b) If the answer to (a) is yes, does the proposed operation satisfy the requirements of 47 C.F.R. Section 73.207? [X] Yes [ ] No

(c) If the answer to (b) is yes, attach as an Exhibit information required in 1/ regarding separation requirements with respect to stations on Channels 221, 222 and 223. Exhibit No. E8

(d) If the answer to (b) is no, attach as an Exhibit a statement describing the short spacing(s) and how it or they arose. Exhibit No. N/A

1/ A showing that the proposed operation meets the minimum distance separation requirements. Include existing stations, proposed stations, and cities which appear in the Table of Allotments; the location and geographic coordinates of each antenna, proposed antenna or reference point, as appropriate; and distance to each from proposed antenna location.

SECTION V-B – FM BROADCAST ENGINEERING DATA (Page 6)

(e) If authorization pursuant to 47 C.F.R. Section 73.215 is requested, attach as an Exhibit a complete engineering study to establish the lack of prohibited overlap of contours involving affected stations. The engineering study must include the following:

Exhibit No. N/A

(1) Protected and interfering contours, in all directions (360), for the proposed operation.
(2) Protected and interfering contours, over pertinent arcs, of all short-spaced assignments, applications and allotments, including a plot showing each transmitter location, with identifying call letters or file numbers, and indication of whether facility is operating or proposed. For vacant allotments, use the reference coordinates as transmitter location.
(3) When necessary to show more detail, an additional allocation study utilizing a map with a larger scale to clearly show prohibited overlap will not occur.
(4) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
(5) The official title(s) of the map(s) used in the exhibits(s).

24. Is the proposed station for a channel in the range from Channel 201 to 220 (88.1 through 91.9 MHz) and the proposed antenna location within the distance to an affected TV Channel 6 station(s) as defined in 47 C.F.R. Section 73.525?

[X] Yes [ ] No

If Yes, attach as an Exhibit either a TV Channel 6 agreement letter dated and signed by both parties or a map and an engineering statement with calculations demonstrating compliance with 47 C.F.R. Section 73.525 for each affected TV Channel 6 station.

Exhibit No. E9

25. Is the proposed station for a channel in the range from Channel 221 to 300 (92.1-107.9 MHz)?

[ ] Yes [X] No

If Yes, attach as an Exhibit information required in 1/. *(Except for Class D (secondary) proposals.)*

Exhibit No. N/A

26. Environmental Statement *(See 47 C.F.R. Section 1.1301 et seq.)*

Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact?

[ ] Yes [X] No

If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 1.1311.

Exhibit No. N/A

If No, explain briefly why not.

Existing authorized tower. See Ex #E10 for RF hazard statement.

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name *(Typed or Printed)*	Relationship to Applicant *(e.g., Consulting Engineer)*
Douglas L. Vernier	Technical Consultant
Signature Douglas L Vernier	Address *(Include ZIP Code)* 1600 Picturesque Dr. Cedar Falls, IA 50613
Date November 29, 1996	Telephone No. *(Include Area Code)* (319) 266-8402

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Exhibit No. N/A

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(2) Protected and interfering contours, over pertinent arcs, of all short-spaced assignments, applications and allotments, including a plot showing each transmitter location, with identifying call letters or file numbers, and indication of whether facility is operating or proposed. For vacant allotments, use the reference coordinates as transmitter location.
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If No, explain briefly why not.

Existing authorized tower. See Ex #E10 for RF hazard statement.

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name *(Typed or Printed)*	Relationship to Applicant *(e.g., Consulting Engineer)*
Douglas L. Vernier	Technical Consultant
Signature Douglas L Vernier	Address *(Include ZIP Code)* 1600 Picturesque Dr. Cedar Falls, IA 50613
Date November 29, 1996	Telephone No. *(Include Area Code)* (319) 266-8402

SECTION VI – EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

1. Does the applicant propose to employ five or more full-time employees? ☐ Yes ☒ No

If Yes, the applicant must include an EEO program called for in the separate Broadcast Equal Employment Opportunity Program Report (FCC 396-A).

SECTION VII – CERTIFICATION

1. Has or will the applicant comply with the public notice requirements of 47 C.F.R. Section 73.3580? ☒ Yes ☐ No

2. The applicant certifies that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. 1.2002(b). ☒ Yes ☐ No

The APPLICANT hereby waives any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. *(See Section 304 of the Communications Act of 1934, as amended.)*

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations, and that all exhibits are a material part hereof and incorporated herein.

The APPLICANT represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

In accordance with 47 C.F.R. Section 1.65, the APPLICANT has a continuing obligation to advise the Commission, through amendments, of any substantial and significant changes in information furnished.

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

I certify that the statements in this application are true and correct to the best of my knowledge and belief, and are made in good faith.

Name of Applicant	Title
Spokane Public Radio, Inc.	President
Signature: Ralph-Kal	Date: December 9, 1996

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of this application is in the public interest. In reaching that determination, or for law enforcement purposes, it may be necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, processing of the application may be delayed or the application may be returned without action pursuant to the Commission's rules. Your response is required to obtain the requested authority.

Public reporting burden for this collection of information is estimated to vary from 78 to 302 hours 20 minutes with an average of 171 hours 36 minutes per response. These estimates includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Information Resources Branch, Room 416, Paperwork Reduction Project, Washington, D.C. 20554, and to the Office of Management and Budget, Paperwork Reduction Project (3060-0034), Washington, D.C. 20503.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

Doug Vernier
1600 Picturesque Drive
Cedar Falls, Iowa 50613
Telecommunication Consultants

EXHIBIT #E1
ENGINEERING STATEMENT

Concerning the Application of
Spokane Public Radio, Inc.
To Increase the Power of Radio Station KSFC
Spokane, Washington

November 1996

Channel 220C2 **3.16 kW H & V DA**

This engineering statement supports the application by Spokane Public Radio, Inc of Spokane, Washington to increase the power and antenna height of KSFC while moving the antenna site 16.4 kilometers to the southeast of its present site.

Under the instant proposal, the type approved FM transmitter generates an output power of 1.265 kilowatts. The 1 5/8", Andrew HJ7-50A, 50 ohm Heliax transmission line, has an efficiency for its 122 meter length (400') of 83.3 percent. Therefore, the proposed custom directional, circularly polarized, antenna has at its input 1.054 kilowatts of power. The directional antenna has a power gain of 3.0 in the both planes resulting in a maximum effective radiated vertically polarized power of 3.16 kW.

Tower and Site:

Exhibit #E2 is a vertical sketch showing the existing authorized 182.3 meter tower and the proposed side-mounted antenna. The proposed antenna will be co-located with the facilities KSPS-TV, Spokane, Washington. The FAA has been notified of the applicant's interest in placing its antenna on the above referenced tower.

Directional Antenna:

Exhibit #E3 is a directional antenna exhibit which shows both an azimuth pattern and a table of effective field values along five degree evenly spaced radial azimuths. The proposed antenna's radiation will meet the Commission's requirement of no more than a two dB maximum rise or fall per ten degrees of azimuthal change. The maximum 15 dB front to back requirement is also fully met. A vertical elevation field pattern is included. The azimuth pattern shown is a composite of the maximum horizontal or vertical field, which ever is greater.

Phone: (319) 266-8402 E-mail: dvernier@v-soft.com Fax: (319) 266-9212

The proposed antenna will be mounted on the sides of a tower that has been specified by the antenna manufacturer in accordance to the instructions provided by the manufacturer. The antenna will not be mounted on the top of a tower which includes a top mounted platform larger then the nominal cross-sectional area of the tower in the horizontal plane. No other antennas of any type will be mounted on the same tower level as the directional antenna nor within the horizontal or vertical distance specified by the manufacturer as being necessary to maintain proper directional operation. The antenna will be designed and tested by a major manufacturer of broadcast antennas known to the Commission. The pattern will be achieved through traditional methods including power splitting through phasing against tower members.

Intermodulation and blanketing:

Exhibit # E4 is an exhibit describing the possible effects of intermodulation and blanketing.

Site Map:

Exhibit #E5 is full scale section of a 1:24,000 U.S. Geological Survey topographic quadrangle map (Spokane S.E. Quadrangle, Washington) showing the exact transmitter location.

Coverage Map:

Exhibit #E6 is a map of the proposed 1 mV/m (60 dBu) F(50-50) contour which shows eight cardinal radials. This map was computer generated using U.S. Geological Survey Digital Line Graph data which was originally digitized from 1:2,000,000 scale maps. A total of 360 evenly spaced radials were used to plot the 60 dBu contour. The political boundaries of Spokane, Washington, the city of licensee, are shown to be fully encompassed by the proposed 60 dBu service contour. The area within the proposed 60 dBu, 1 mV/m contour, amounts to 5,857 square kilometers. This figure was determined by averaging the distance to the contour along 360 evenly spaced radials. The resulting average was used in the following formula to determine the area within the contour: Area = πR^2. The population within the 60 dBu service contour was determined to be 430,561 people through the use of a computer program which extracts a population count based on population centroids defined by U.S. Census 1990 (PL-94-171) digital census data. This program draws data from the following summary level: State-County-Voting District/Remainder-County Subdivision, Place/Remainder-Census Tract/Block Numbering Area-Block Group.

A total of 8 evenly spaced radials were used to determine the antenna height above average terrain. The N.G.D.C. 30 arc second database was used to determine the radial elevations which were averaged using the require four-point interpolation method and then employed to project the distances to signal contours along the

pertinent radials. (See a tabular listing of these contours on page #5 of this exhibit.)

Change Area Map:

Exhibit #E7 is a map comparing the existing and proposed 1 mV/m (60 dBu) signals of KSFC. The change area amounts to an increase in service area of 559 percent.

Allocation Study:

Exhibit #E8 is an allocation study showing that no interference will be caused to licensed radio stations, construction permits, pending applications or allocations.

Page #1 and #2 of exhibit #E8 is a contour to contour tabular listing of all stations having a frequency and distance relationship with the proposed facility. Page #3 of this exhibit is a narrative explaining the procedures and conventions used in preparing the tabular listing. Page #4 of this exhibit is an allocation map showing the contour to contour relationship between KRFAFM (BPED 951103KE), Moscow, Idaho and the proposed facilities. Page #5 of this study is an FMOVER tabulation of the interfering signal level of KRFAFM along the 1 mV/m protected contour of the proposed facility. Page #6 is an allocation map showing the contour relationship between the proposed facility and the second adjacent interference signal contour of KUBS, Newport, Washington. Page #7 is an FMOVER study showing the interfering signal values of KUBS along the 1 mV/m protected signal contour of the proposed facility. In relationship to commercial stations operating on channels 221 through 223, the proposed facility meets all spacing requirements as specified in Section 73.215 of the Commission's Rules and Regulations.

There is a distant I.F. relationship with KRAO(CP), Colfax, Washington. Based on the classes of stations involved, the Commission's separation tables require 17 kilometers, when in fact the stations are located 79.95 kilometers apart.

The proposed station is within 320 kilometers of the US border with Canada. There are no pertinent relationships with Canadian stations. All spacing relationships are fully met with Canadian stations and allocations.

Channel-six interference protection:

Exhibit #E9: The proposed facility is to be located 600 meters from KHQTV, Channel-six, Spokane.

Page #1 of this exhibit comprises a narrative which relates the methods used in the channel-six study and calculates the population within the predicted interference area. Page #2 of this exhibit

is a map which uses the provisions of Section 73.525 to show the predicted interference to the TV-6 station. Page #5 is a more detailed study using a photo-reduction of the Spokane SE quadrangle map. This exhibit shows the proposed 103.5 dBu interference contour falling over an unpopulated area. Page #6 is another map of the 103.5 dBu interference contour showing superimposed U.S. Census 1990 (PL-94-171) digital block-group population centroids. (There are no centroids within the interference contour.) Page #7 is tabulation of the distances to the 103.5 dBu interference signal contour of the proposed facility.

R.F. Hazard compliance:

Exhibit #E10 shows compliance with the Commission's R.F. radiation standards.

Page # 6 of this exhibit (#E1) is a statement by the preparer, Doug Vernier, attesting to his qualifications.

TERRAIN AND CONTOUR DATA
Spokane Public Radio, Inc.

ERP = 3.16 kW
FM - 2-6 Tables 30 Sec

Azimuth Deg T.	Ave. Elev. 3 to 16 km Meters AMSL	Effective Antenna Height Meters AAT	ERP (dBk)	F(50-50) Distance to 60 dBu Contour km
0	697.6	521.6	4.997	52.1
45	637.6	581.6	4.997	55.1
90	871.9	347.3	3.102	39.3
135	770.5	448.7	-5.607	27.9
180	730.9	488.3	-9.566	23.5
225	694.5	524.7	-2.016	37.4
270	671.2	548.0	4.821	53.2
315	668.6	550.6	4.997	53.7
Ave. =	717.9 M	501.4 M		

Antenna Radiation Center AMSL = 1219.2 M

Geographic Coordinates:

North latitude: 47 34 34
West longitude: 117 17 58

Declaration:

I, Doug Vernier, declare that I have studied engineering at the University of Michigan and have received degrees from the University in the field of Broadcast Telecommunications. That, I have been active in broadcast consulting for over 23 years;

That, I have held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1985 this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-16-16464;

That, I am certified as a Professional Broadcast Engineer (#50258) by the Society of Broadcast Engineers, Indianapolis, Indiana. (Re-certified 11/95.)

That, my qualifications are a matter of record with the Federal Communications Commission;

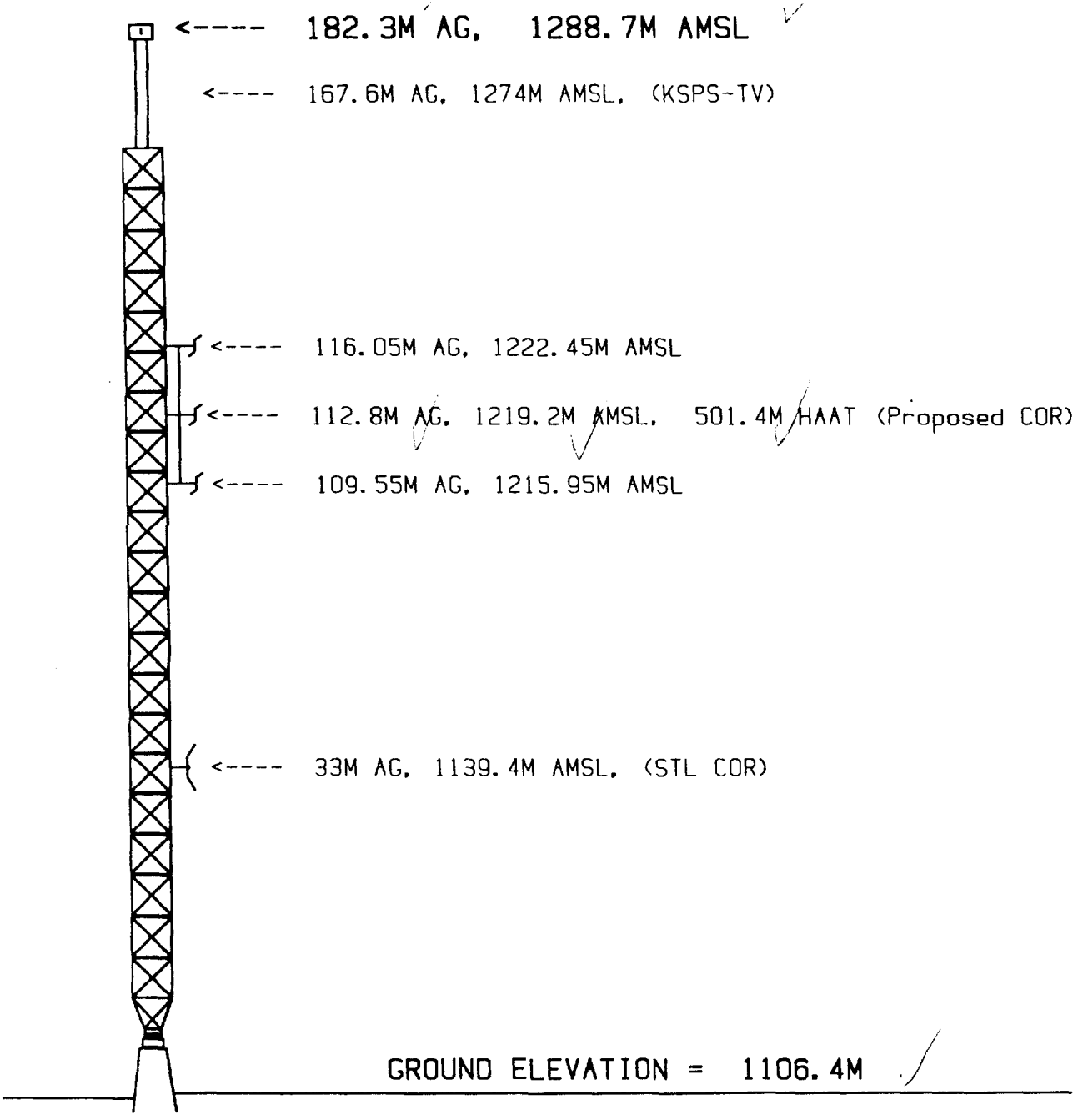
That, I have been retained by Spokane Public Radio, Inc., Spokane, Washington to prepare the engineering showings appended hereto;

That, I have prepared these engineering showings, the technical information contained in same and the facts stated within are true of my knowledge;

That under penalty of perjury, I declare that the foregoing is correct.

Douglas L. Vernier

Executed on November 29, 1996



VERTICAL SHETCH

N. Lat. 47 34 34
W. Lng. 117 17 58

Existing Authorized Tower

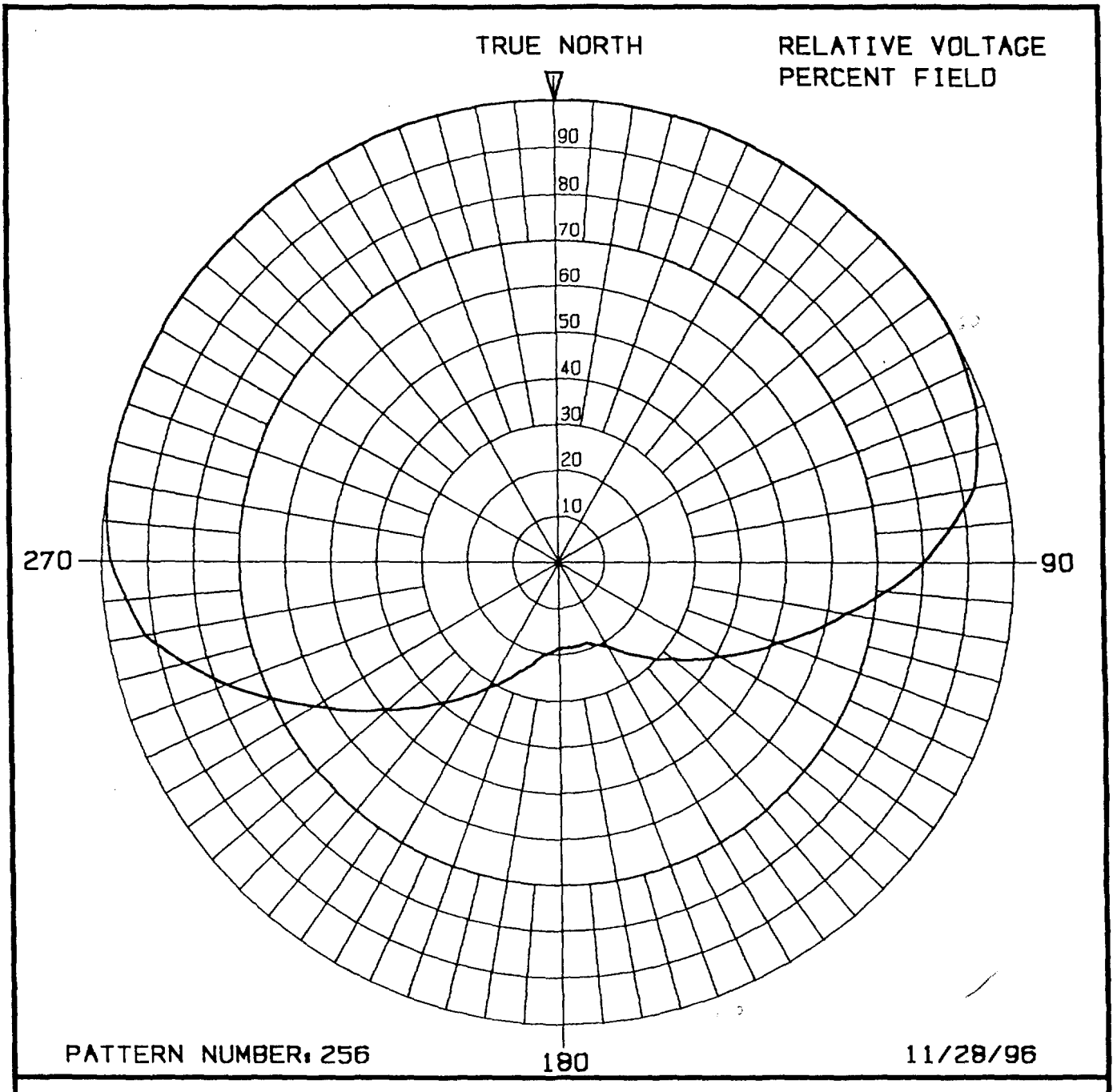
(Not to Scale)

EXHIBIT #E2

CH 220 - Spokane, WA
3.16 kW DA - 501.4 M HAAT

Spokane Public Radio, Inc.
Nov. '96

DOUG VERNIER
BROADCAST CONSULTANT
1600 PICTURESQUE DR.
CEDAR FALLS, IA 50613
319 266-8402



CUSTOM DIRECTIONAL
PROPOSED DIRECTIONAL ANTENNA PATTERN

SPOKANE PUBLIC RADIO, INC.

Doug Vernier, Telecommunications Consultants
1600 Picturesque Dr.
Cedar Falls, IA 50613
319 266-8402

Pattern #256

Azimuth	Relative Voltage	dBK	ERP
0	1.000	5.0	3.16kw
5	1.000	5.0	3.16kw
10	1.000	5.0	3.16kw
15	1.000	5.0	3.16kw
20	1.000	5.0	3.16kw
25	1.000	5.0	3.16kw
30	1.000	5.0	3.16kw
35	1.000	5.0	3.16kw
40	1.000	5.0	3.16kw
45	1.000	5.0	3.16kw
50	1.000	5.0	3.16kw
55	1.000	5.0	3.16kw
60	1.000	5.0	3.16kw
65	0.990	4.9	3.10kw
70	0.980	4.8	3.03kw
75	0.955	4.6	2.88kw
80	0.930	4.4	2.73kw
85	0.867	3.8	2.37kw
90	0.804	3.1	2.04kw
95	0.723	2.2	1.65kw
100	0.642	1.1	1.30kw
105	0.578	0.2	1.05kw
110	0.513	-0.8	832w
115	0.461	-1.7	673w
120	0.410	-2.8	531w
125	0.369	-3.7	429w
130	0.327	-4.7	339w
135	0.295	-5.6	274w
140	0.262	-6.6	216w
145	0.235	-7.6	175w
150	0.209	-8.6	138w
155	0.198	-9.1	124w
160	0.187	-9.6	110w
165	0.187	-9.6	110w
170	0.187	-9.6	110w
175	0.187	-9.6	110w

Pattern #256

Azimuth	Relative Voltage	dBK	ERP
180	0.187	-9.6	110w
185	0.197	-9.1	122w
190	0.207	-8.7	135w
195	0.230	-7.8	167w
200	0.253	-7.0	202w
205	0.285	-5.9	256w
210	0.316	-5.0	316w
215	0.356	-4.0	401w
220	0.396	-3.0	495w
225	0.446	-2.0	628w
230	0.496	-1.1	776w
235	0.558	-0.1	984w
240	0.620	0.8	1.22kw
245	0.698	1.9	1.54kw
250	0.777	2.8	1.91kw
255	0.848	3.6	2.27kw
260	0.920	4.3	2.67kw
265	0.950	4.6	2.85kw
270	0.980	4.8	3.03kw
275	0.990	4.9	3.10kw
280	1.000	5.0	3.16kw
285	1.000	5.0	3.16kw
290	1.000	5.0	3.16kw
295	1.000	5.0	3.16kw
300	1.000	5.0	3.16kw
305	1.000	5.0	3.16kw
310	1.000	5.0	3.16kw
315	1.000	5.0	3.16kw
320	1.000	5.0	3.16kw
325	1.000	5.0	3.16kw
330	1.000	5.0	3.16kw
335	1.000	5.0	3.16kw
340	1.000	5.0	3.16kw
345	1.000	5.0	3.16kw
350	1.000	5.0	3.16kw
355	1.000	5.0	3.16kw

JAMPRO ANTENNAS, INC.
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(916) 383-1177 FAX (916) 383-1182

JAMPRO ANTENNAS INC.

Bays : 3

ELEVATION PATTERN

Spacing (Wavelength): 1.00

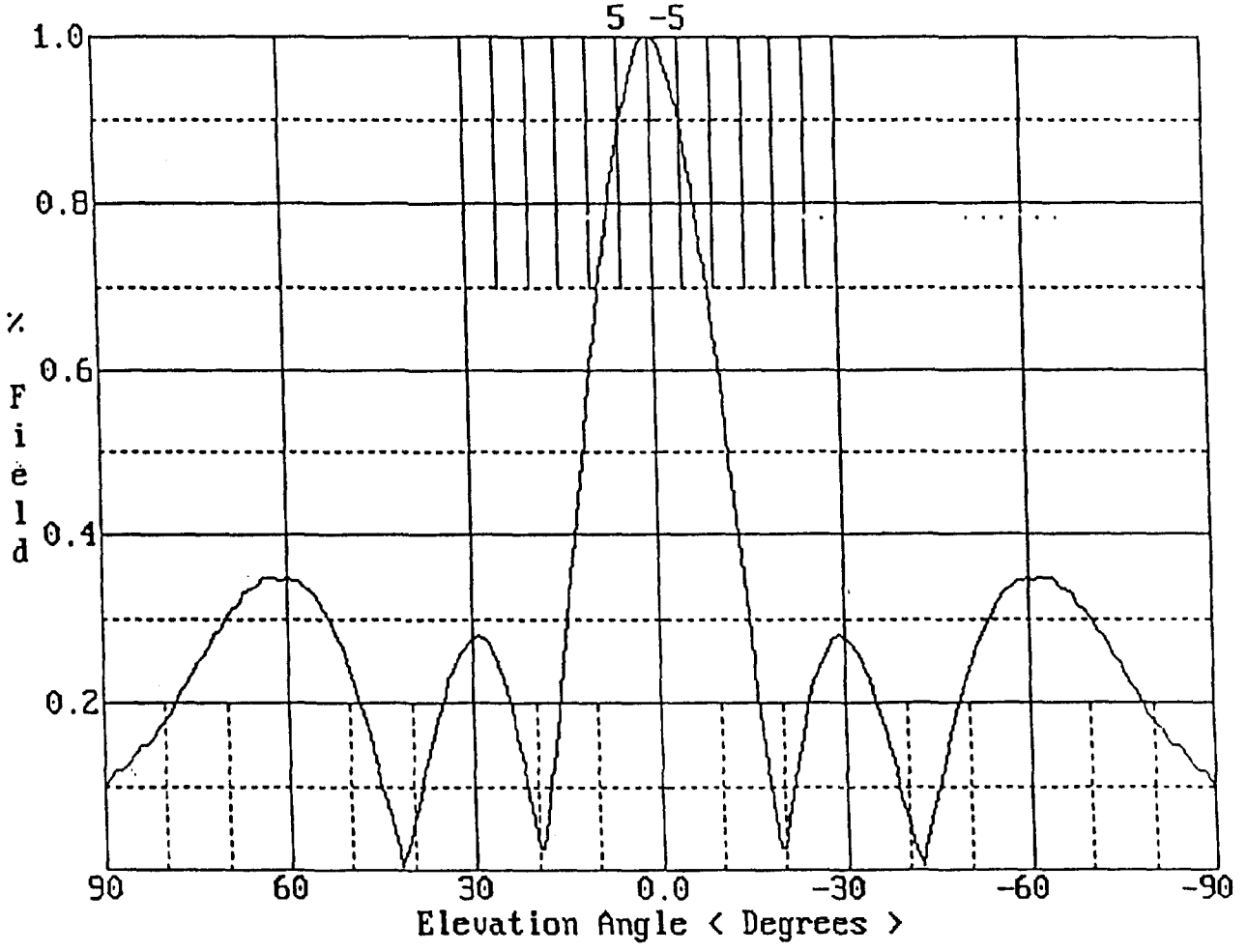

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TABLE OF FIELD STRENGTH FOR : JHPC3.PMT

INCREMENTAL DEGREES

		0	1	2	3	4	5	6	7	8	9
	+	1.000	.996	.984	.955	.928	.893	.853	.798	.746	.689
	-	1.000	.996	.984	.955	.928	.893	.853	.798	.746	.689
D	-10	.628	.558	.487	.420	.349	.279	.213	.147	.085	.026
E	-20	.028	.078	.123	.162	.195	.225	.247	.263	.276	.281
G	-30	.280	.274	.260	.246	.227	.203	.178	.151	.120	.090
R	-40	.059	.026	.006	.038	.070	.101	.132	.161	.189	.215
E	-50	.240	.259	.280	.294	.310	.319	.332	.336	.345	.345
E	-60	.350	.346	.348	.348	.348	.337	.334	.331	.317	.311
S	-70	.305	.288	.281	.263	.255	.246	.227	.218	.209	.189
	-80	.179	.170	.160	.150	.150	.140	.130	.120	.120	.110
	-90	.100									

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CIRCULARLY POLARIZED DIRECTIONAL FM ANTENNA

ANTENNA MODEL:

PATTERN ENVELOPE

JAMPRO proposes to custom build and directionallze a standard FM side mount antenna to meet this stations needs. The final patterns of the HPOL and VPOL will remain within the given pattern envelope.

DESCRIPTION OF TEST

JAMPRO will build or utilize an exact duplicate of the support structure for testing, paying close attention to details, such as including other structures present, such as climbing steps, feed lines etc.

JAMPRO will perform all testing in full scale on our full scale test range. JAMPRO will add parasitic's to the environment to manipulate the pattern to meet all requirements. All brackets and parasitic's will be hot dipped galvanized steel to ensure good contact and long life.

JAMPRO will provide a final certification and complete installation drawings of the system when all work is completed. Customer is instructed to follow all mounting instructions and have a licensed surveyor verify the heading of the antenna boom.

All testing will be under the direct supervision of Eric Dye, JAMPRO's full time staff engineer. He holds a Masters of Science Degree in Electrical Engineering, and has been developing and designing directional FM arrays for over 5 years.

RULE COMPLIANCE

JAMPRO will comply with all known FCC rules including those stated directly on the stations construction permit. The rules include the following:

The licensed ERP will not be exceeded at any heading

The rms of the Vpol will not exceed the rms of the Hpol.

The maximum to minimum signal will not exceed 15 dB

JAMPRO will attempt to fill the 85% rms requirement

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MOUNTING CONSIDERATIONS

JAMPRO instructs that no other antennas are mounted within the appeture of the directional array. A minimum vertical spacing of 10' should be kept for antennas mounted on the same mounting structure. The tower and all cables, steps, etc should be properly RF grounded.

Since directional antenna systems include parasitic reflectors and special bracketing, standard weights and windloads should not be used. Contact JAMPRO for estimated weights and windloads on this antenna.

CONCLUSION

JAMPRO ANTENNAS, INC. carefully follows sound engineering principles in all aspects of developing an FM directional antenna. Over 35 years of experience goes into the design of each system. The customer or his engineer are welcome to be on site during the testing, contact factory for scheduling.